

Curriculum Map Year 7 - Science

Topic Name	Term	Content / skills developed with link to NC / exam board subject content (if applicable)	Reflection on previous learning	Progress to future learning	Global Citizenship links	Qatar National Identity links
Working in the lab + Acids and alkalis	1	<ul style="list-style-type: none"> • General lab safety rules • Hazard symbols and their universal use in the lab • Common lab equipment and its uses • Safe use of a Bunsen burner • Acids and alkalis + identifying unknown liquids using pH indicators 	Year 5 IPC – Properties of materials Year 5 IPC – Reversible and irreversible changes	General labs skills and knowledge of scientific equipment. Year 9 Reactivity Year 10-11 Chemistry reactivity series – acids, alkali and titrations	PRIDE Prepare for future challenges Developing skills for the future	Conscious thinking about my Actions
Mixtures and separation	1	<ul style="list-style-type: none"> • Describe what a mixture is in terms of particles • Define the terms solute, solvent, solution, soluble, insoluble and saturated • Describe how factors can affect solubility • How to separate a solid from a liquid using evaporation • How to separate inks and dyes using chromatography • How to separate a mixture of liquids using distillation 	Year 4 IPC – States of matter Year 5 IPC – Properties of materials Year 5 IPC – Reversible and irreversible changes	Year 10-11 Chemistry – elements, compounds and mixtures States of matter	PRIDE Prepare for future challenges Developing skills for the future	Conscious thinking about my Actions
Cells, tissues, organs and systems	1	<ul style="list-style-type: none"> • State the 7 life processes that all living organisms share • Define cell, tissue, organ and organ system 	Year 5 IPC – Life cycles Year 5 IPC – Animals including humans Year 6 IPC – The circulatory system	Year 10 – 11 Biology cells and specific organ systems (respiratory,	PRIDE Prepare for future challenges	Conscious thinking

		<ul style="list-style-type: none"> • Describe the structure and function of an animal and plant cell. • Be able to state similarities and differences between an animal and plant cell • Describe the structure of specialised cells and how their adaptations relate to their function • Be able to use a microscope to identify organelles in a plant and animal cell • Calculate magnification using image size and actual size • Independently prepare animal and plant cell slides 		circulatory, excretory etc)	Developing skills for the future	about my Health
Forces	1	<ul style="list-style-type: none"> • Describe what a force is and state the name of simple forces • Recall what is meant by contact and non-contact forces • Represent direction and magnitude of forces using arrow diagrams • Describe how the extension of a spring depends on the force applied • Describe how a Newton meter can be used to measure force • Describe the effects of friction and some ways that friction can be changed 	Year 5 IPC – Forces	Year 10-11 Physics – forces & motion	PRIDE Prepare for future challenges Developing skills for the future	<p>Conscious thinking about my Actions</p> <p>Conscious thinking about my Hobbies</p>

		<ul style="list-style-type: none"> • Identify simple situations where friction can be helpful or not helpful • State what is meant by pressure and describe how pressure depends on force and area • Recall some common units for measuring pressures and calculate pressure using force / area • Explain the effects of balanced and unbalanced forces in simple situations 				
Atoms, elements and compounds	2	<ul style="list-style-type: none"> • State that matter is made up of atoms • Define element, molecule, compound and mixture • Recognise some symbols for common elements and relate the properties of different elements to their uses • Describe common physical properties of metal and non-metal elements • Use evidence to classify unfamiliar materials as being metal or non-metallic elements • Describe how elements can combine to form compounds in a chemical reaction and some observations that a chemical reaction has taken place 	<p>Year 4 IPC – States of matter Year 5 IPC – Properties of materials Year 5 IPC – Reversible and irreversible changes</p>	<p>Year 10-11 – Chemistry atomic structure Periodic table</p>	<p>PRIDE Prepare for future challenges Developing skills for the future</p>	<p>Conscious thinking about my Environment</p>

		<ul style="list-style-type: none"> • Explain the difference between chemical reactions and physical changes • Model simple reactions using word equations 				
Muscles and bones	2	<ul style="list-style-type: none"> • Recall what happens in respiration, gas exchange and breathing and the differences between each. • Explain how muscles cause breathing movements. • Correctly use the terms inhalation, exhalation, ventilation and breathing rate. • State the functions of arteries, veins and capillaries in the human double circulatory system. • State how the heart pumps blood, by the action of muscles. • Describe the functions of components of blood • Explain how the structures of blood vessels are related to their function. • Identify the main bones in the human skeleton and recall the main functions of the skeleton • Describe the basic parts of joints • Describe how muscles and bones work together to allow movement. 	<p>Year 3 IPC – Skeletons Year 3 IPC – Movement</p>	<p>Year 10 Biology – coordination and control</p>	<p>PRIDE Prepare for future challenges Developing skills for the future</p>	<p>Conscious thinking about my Health</p>

		<ul style="list-style-type: none"> • Describe what happens when muscles contract • Recall that muscles are controlled by the nervous system 				
Current electricity	2	<ul style="list-style-type: none"> • Recall materials that are conductors and insulators. • Identify common circuit components and their symbols and recall their functions. • Measure current using an ammeter and record using correct units. • Describe how changing the number or type of components in a circuit affects the current • Construct a circuit from instructions provided in the form of a circuit diagram. • State what is meant by series circuit, parallel circuit. • Recall the differences between how current behaves in series and parallel circuits • Recall that cells/batteries produce a voltage that causes an electric current in a complete circuit. The size of a voltage depends on the number, and orientation, of the cells. 	Year 4 & 6 IPC – Electricity Year 6 IPC – Renewable energy	Year 10-11 Physics – electricity	PRIDE Prepare for future challenges Developing skills for the future	<p>Conscious thinking about my Actions</p> <p>Conscious thinking about my Environment</p>

		<ul style="list-style-type: none"> • Be able to use a voltmeter to measure the voltage in a circuit. • Recall that a fuse is a safety component and describe how it works. 				
Sexual reproduction	3	<ul style="list-style-type: none"> • State that animal reproduction involves male and female gametes. • Compare sexual reproduction in fish, birds and mammals. • Describe how the fusing of gamete nuclei forms a fertilised egg cell • Identify and describe the functions of the parts of the male and female reproductive systems. • Explain how sperm cells and egg cells (ova) are adapted to their functions. • Describe the stages that lead from fertilisation to an embryo developing in the uterus. • Identify and describe the functions of the structures that protect and care for an embryo. • Describe what happens during cell division. • Describe how materials are supplied and removed from an embryo. • Explain how twins occur. 	Year 5 IPC – Life cycles	Year 10 Biology inheritance Year 11 Biology human reproduction	PRIDE Prepare for future challenges Developing skills for the future	<p>Conscious thinking about my Future</p> <p>Conscious thinking about my Family</p> <p>Conscious thinking about my Health</p>

		<ul style="list-style-type: none"> • List the main stages of gestation in humans • Describe what happens to parts of the body during puberty and adolescence. • Recall the length of and stages in the menstrual cycle. 				
Energy and energy transfer	3	<ul style="list-style-type: none"> • Recall how energy is stored and transferred. • Recall the factors affecting the amount of energy needed in a person's diet of varying ages and activity levels. • Describe energy transfer chains for given situations. • Identify useful and wasted energies. • State the meaning of biomass/biofuel, fuel, renewable, non-renewable. • Recall examples of renewable and non-renewable fuels and their sources and describe advantages and disadvantages of different energy resources. • Interpret and draw graphs showing the changing use of energy resources for generating electricity. • Recall some effects of climate change. 	Year 4 IPC – Energy Year 6 IPC – Renewable energy	Year 10-11 Physics – energy and energy transfer	PRIDE Prepare for future challenges Developing skills for the future	<p>Conscious thinking about my Actions</p> <p>Conscious thinking about my Future</p> <p>Conscious thinking about my Environment</p> <p>Conscious thinking about my Country</p>

		<ul style="list-style-type: none"> • Identify useful and wasted energies and explain how these relate to efficiency. • Explain how certain gases cause the greenhouse effect and how levels of these gases in the atmosphere can be prevented from increasing further. 				
Particle model + fluids	3	<ul style="list-style-type: none"> • Classify materials as solids, liquids and gases based on their properties. • State what is meant by the terms volume and density • Describe the properties of the three states of matter in terms of shape, volume and compressibility. • Describe, draw and recognise the arrangement of particles in solids, liquids and gases. • Use the particle model to explain other observations about matter. • Describe Brownian motion and state situations in which it can be observed. • Explain how Brownian motion occurs, using particle theory. • Describe diffusion as the movement of one substance through another 	<p>Year 4 IPC – States of matter Year 5 IPC – Properties of materials Year 5 IPC – Reversible and irreversible changes</p>	<p>Year 10-11 Chemistry – atoms, molecules, compounds and mixtures</p> <p>Year 10-11 Physics – properties of materials</p>	<p>PRIDE Prepare for future challenges Developing skills for the future</p>	<p>Conscious thinking about my Environment</p>

		<p>without any external mixing.</p> <ul style="list-style-type: none"> • Recall some everyday examples of diffusion. • Explain how diffusion occurs in terms of movement of particles, and their movement from higher concentration to lower concentration. • Explain why the speed of diffusion in gases is faster than in liquids. • Describe how moving gas particles cause pressure when they hit the walls of their container. • Recognise some effects of pressure • Explain that more particles in a container will cause a greater pressure. • Explain the ways in which gas pressure can be increased • Describe what a vacuum is. • Explain some of the effects of air pressure 				
STEM project		<ul style="list-style-type: none"> • Science research and investigation project. Topic to be confirmed year-on-year. Pupil suggestions for topics are encouraged • Why we do investigations in science 		Year 10-11 Sciences – core practicals	PRIDE Prepare for future challenges Developing skills for the future	Conscious thinking about my Actions

		<ul style="list-style-type: none">• Types of variables in science• How to plan an experiment• How to present results• How to write a conclusion based on observations• Recall the limitations of specific investigations and how they can be improved				
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